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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/707,589	11/07/2000	Christopher Perry	S-50035P1	9684

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EXAMINER
MEHTA, ASHWIN D

ART UNIT	PAPER NUMBER
1638	6

DATE MAILED: 09/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/707,589	Applicant(s) PERRY, CHRISTOPHER
	Examiner Ashwin Mehta	Art Unit 1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19,23-25,29-31,35-41 and 43-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-5,19 and 25* is/are allowed.

6)☒ Claim(s) *6-16,23,24,29-31,35-41 and 43-49* is/are rejected.

7)☒ Claim(s) *17 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
4)☐ Interview Summary (PTO-413) Paper No(s). _____
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. The objection to the specification for the inclusion of an embedded hyperlink is withdrawn, in light of amendment removing the hyperlink.

3. The rejections of claims 1-42 under 35 U.S.C. 112, 2nd paragraph, in the Office action mailed 29 January 2002 have been withdrawn in light of the claim amendments or cancellations.

4. The rejection of claim 42 under 35 U.S.C. 112, 1st paragraph, is withdrawn in light of its cancellation.

5. The rejection of claims 1-42 under 35 U.S.C. 112, 1st paragraph is withdrawn, in light of the insertion of the ATCC deposit number into the claims.

6. The rejection of claims 1-11, 15-20, 23-26, 29-32, 35, 36, 40, and 42 under 35 U.S.C. 102(e) and 103(a) is withdrawn, in light of the claim amendments and cancellations.

7. The rejection of claims 1-42 under 35 U.S.C. 103(a) is withdrawn, in light of the claim amendments and cancellations.

Claim Objections

8. Claims 15-18, and 37 remain, and claims 38, 41 and 45 are objected to, for the reasons of record stated in the Office action mailed 29 January 2002 under item 2. Applicant's response, submitted 13 May 2002, has not resolved the following issues:

In claims 15 and 16, line 1, "a" should be --the--.

Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In claim 18, the recitation --wherein said plant is-- should be inserted in line 1 after "claim 16,".

In amended claim 37, line 2, "a plant" should be replaced with --the plant--, and in line 4, "a maize plant" should be replaced with --the maize plant--.

In amended claim 38, line 1, "A method" should be replaced with --The method--.

In claim 41, line 1, the recitation "said a single" should be replaced with --said single--.

Further in claim 38: the claim is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). It is suggested that the recitation "a plant according to claim 2, further comprising" in lines 2-3 be replaced with --the maize plant of line NP2052 further comprises--.

Claim 45 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the

claim(s) in independent form. The claim has the same limitation as claim 8, from which it depends.

Claim Rejections - 35 USC § 112

9. Claims 6, 9-14, 16, 23, 24, 29, 30, 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6: the claim is indefinite because it is not clear if the plant is male sterile because it has been detasseled, or whether it has been genetically manipulated. The following amendments are suggested: 1) re-write claim 6 to read --The maize plant of claim 2, wherein said plant is detasseled--; 2) add new claim 50, drawn towards directed towards a method of producing a male sterile maize plant comprising transforming the maize plant of claim 2 with a nucleic acid that confers male sterility, and a new claim 51 directed towards a male-sterile maize plant produced by the method of claim 50.

In claims 9 and 11: the recitation "single gene transferred trait comprises a gene" in lines 1-2 renders the claims indefinite. A gene can confer a trait, but a trait does not comprise a gene.

In claim 16: the claim recites the limitation "The plant" in line 1. There is insufficient antecedent basis for this limitation in the claim or the claims from which it depends. It is suggested that "The" be replaced with --A--.

In claim 23, 24, 29, and 30: the claims are indefinite because they are dependent upon cancelled claims.

In claim 38: the claim recites the limitation "said maize plant having the physiological and morphological characteristics of a plant according to claim 2" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim or those from which it depends. See the amendment to claim 38 suggested above.

10. Claims 7, 8, 14, 15, 23, 24, 29, 30, 31, 35-39, 43-49 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are broadly drawn towards maize inbred plant NP2052, seed of which has been deposited with the ATCC under accession no. PTA-2660, further comprising one or more single gene transferred traits; seed of said plant; or wherein said plant or parts thereof has been transformed with one or more transgenes operably linked to one or more regulatory elements; any F1 hybrid seed produced by crossing maize inbred NP2052 with any other maize plant; any F1 plant grown from said F1 hybrid seed; any F1 hybrid seed or plant thereof, produced by crossing any maize plant with a maize inbred plant that has all the physiological and morphological characteristics of inbred NP2052; or a method for producing and F1 hybrid maize seed or plant thereof by crossing any maize plant with maize inbred NP2052 that further comprises any one or more single gene transferred traits; a method comprising planting a collection of seed of any hybrid, one of whose parents is maize inbred NP2052 or a maize plant having all the physiological and morphological characteristics of inbred NP2052; or said methods wherein said maize plant having all the physiological and morphological characteristics

of inbred NP2052 further comprises any single gene transferred trait; or a maize plant having all the physiological and morphological characteristics of inbred NP2052, wherein said plant has been transformed to contain one or more transgenes operably linked to one or more regulatory elements; a method for producing a maize plant comprising crossing said transformed plant with another maize plant; a method for developing a maize plant in maize plant breeding program comprising using inbred NP2052, and any plant produced by said method.

Claim 23 is being interpreted if it should depend from claim 19. Claim 29 is being interpreted as if it should depend from claim 25. Claim 35 is being interpreted as if it should depend from claim 31.

The specification describes numerous morphological and physiological traits of maize inbred line NP2052 (page 10, line 1 to the paragraph bridging pages 14-15). The specification also indicates that NP2052 has been deposited with the ATCC under accession number PTA-2660 (page 25).

However, the specification does not describe any progeny seeds or progeny plants of NP2052. The description of maize plant NP2052 does not provide any information concerning the description of any of its descendents. Methods to produce the claimed hybrids or other descendents of NP2052 do not describe the morphological and physiological traits of the seeds and plants themselves. Further, regarding the claims encompassing maize plants comprising single gene single gene traits and transgenes: the single gene traits and transgenes may be of any gene, including those that affect more than one trait. The morphological and physiological characteristics of any such plant comprising the single gene trait or transgene are not described. A transgene that is a transcription factor, for example, can effect more than just one gene, and

multiple traits. Such plants would express different morphological and physiological traits than those expressed by NP2052, which are not described. The single gene trait or transgenes also include that are not described by the specification or the prior art. It is suggested that claims be amended to indicate that the types of transgenes contemplated in the specification, for example those conferring insect resistance, provided the specification or the prior art describes those types of isolated genes. Given the breadth of the claims encompassing progeny derived from maize plant NP2052, or NP2052 further comprising any single gene trait or transgene, and lack of guidance of the specification as discussed above, the specification fails to provide an adequate written description of the multitude of plants and their parts encompassed by the claims.

11. Claims 14, 40 and 41 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are broadly drawn towards a method comprising introgressing a single gene trait into inbred maize line NP2052 comprising a breeding program.

As discussed above, the specification teaches numerous morphological and physiological traits of maize inbred line NP2052. However, the specification does not teach any NP2052 plants comprising single gene conversions. Nor does the specification teach how to introgress Bt-11 or 176 events into the same location of the same chromosome of NP2052. It is not clear that single genes may be introgressed into the genetic background of a plant through traditional breeding. Hunsperger et al. (US Patent No. 5,523, 520), Kraft et al. (Theor. Appl. Genet., 2000,

Vol. 101, pages 323-326), and Eshed et al. (Genetics, 1996, Vol. 143, pages 1807-1817), for example, teach that it is unpredictable whether the gene or genes responsible for conferring a phenotype in one plant genotypic background may be introgressed into the genetic background of a different plant, to confer a desired phenotype in said different plant. Hunsperger et al. teach that the introgression of a gene in one genetic background in any plant of the same species, as performed by sexual hybridization, is unpredictable in producing a single gene conversion plant with a desired trait (column 3, lines 26-46). Kraft et al. teach that linkage disequilibrium effects and linkage drag prevent the making of plants comprising a single gene conversion, and that such effects are unpredictably genotype specific and loci-dependent in nature (page 323, column 1, lines 7-15). Kraft et al. teach that linkage disequilibrium is created in breeding materials when several lines become fixed for a given set of alleles at a number of different loci, and that very little is known about the plant breeding materials, and therefore it is an unpredictable effect in plant breeding (page 323, column 1, lines 7-15). Eshed et al. teach that in plants, epistatic genetic interactions from the various genetic components comprising contributions from different genomes may affect quantitative traits in a genetically complex and less than additive fashion (page 1815, column 1, line 1 to page 1816, column 1, line 1). In the absence of further guidance, undue experimentation would be required by one skilled in the art to overcome the difficulties and unpredictability of single gene conversions taught in the prior art.

12. Claims 1-5, 19 and 25 are allowed; claims 17 and 18 are objected to; claims 6-16, 23, 24, 29, 30, 31, 35-41, and 43-49 are rejected.

Contact Information

Any inquiry concerning this or earlier communications from the examiner should be directed to Ashwin Mehta, whose telephone number is 703-306-4540. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays from 8:00 A.M to 5:30 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at 703-306-3218. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 and 703-872-9306 for regular communications and 703-872-9307 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

ASHWIN D. MEHTA, PH.D
PATENT EXAMINER

September 10, 2002